Am ndm nts to th Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Cancel claims 1-24.

Please add the following new claims.

25. (New) A biocompatible non-porous matrix based on chitosan and an acid, in particular a hydroxy carboxylic acid, obtainable by:
    - providing an aqueous solution of a chitosan and of an acid, in particular a hydroxy carboxylic acid, which is present in excess,
    - drying the solution without freezing and
    - removing excess acids before or/and after the drying.

26. (New) The non-porous matrix as claimed in claim 25 in the form of a sheet, of a hollow article or of a roll.

27. (New) The non-porous matrix as claimed in claim 25, characterized in that the hydroxy carboxylic acid is selected from glycolic acid, lactic acid, malic acid, tartaric acid, citric acid and mandelic acid, in particular lactic acid.

28. (New) A biocompatible matrix system comprising at least one biocompatible non-porous matrix as claimed in claim 25 and at least one biocompatible porous matrix.

29. (New) The matrix system as claimed in claim 28, characterized in that at least one biocompatible porous matrix has a structure based on chitosan and an acid, in particular a hydroxy carboxylic acid.

30. (New) The matrix system as claimed in claim 29, characterized in that the biocompatible porous matrix is obtainable by:

- providing an aqueous solution of a chitosan and of an acid, in particular a hydroxy carboxylic acid, which is present in excess,
- freezing and drying the solution, in particular by sublimation under reduced pressure and
- removing excess acid before or/and after the freezing.

31. (New) The matrix system as claimed in claim 28, characterized in that non-porous matrices and porous matrices are each disposed alternatively in layers.

32. (New) The use of a non-porous matrix as claimed in claim 25 for the in vitro culturing of cells.

33. (New) The use as claimed in claim 32, characterized in that the matrix system comprises ligands, e.g. factors for growth of cells.

34. (New) The use as claimed in claim 32 for culturing cartilage tissue, for reconstructing bone tissue, as filling material for bioreactors for producing cells, proteins or viruses, as microcarrier of filling material for bioreactors, for generating capillaries and blood vessels, for generating optionally multilayer skin systems, for culturing blood stem cells, for regenerating nerve tissue and for generating artificial organs.

35. (New) The use of a non-porous matrix as claimed in claim 25 as implant without previous cell colonization.

36. (New) The use as claimed in claim 35 for cartilage and bone defects, as microcapillaries or as surgical filling material.

37. (New) A biocompatible matrix based on chitosan and an acid, in particular a hydroxy carboxylic acid with anisotropic structures.

38. (New) The matrix as claimed in claim 37, characterized in that it comprises fibers or chambers in parallel alignment.

39. (New) The matrix as claimed in claim 37 characterized in that it is porous.

40. (New) The matrix as claimed in claim 37 obtainable by:

- providing an aqueous solution of a chitosan and of an acid, in particular a hydroxy carboxylic acid, which is present in excess,
- anisotropic freezing and drying the solution, in particular by sublimation under reduced pressure and
- removing excess acid before or/and after the freezing.

41. (New) A biocompatible matrix system comprising at least one biocompatible anisotropic porous matrix as claimed in claim 37 and at least one biocompatible non-porous matrix.

42. (New) The use of an anisotropic matrix as claimed in claim 37 for the in vitro culturing of cells or as implant without previous cell colonization.

43. (New) A biocompatible matrix based on chitosan and an acid, in particular a hydroxy carboxylic acid, characterized in that it comprises nucleic acids in chemically coupled-on form.

44. (New) The use of a biocompatible matrix based on chitosan and an acid, in particular a hydroxy carboxylic acid, for culturing cartilage tissue, for reconstructing bone tissue, as filling material for bioreactors for producing cells, proteins or viruses, as microcarrier of filling material for bioreactors, for

generating capillaries and blood vessels, for generating optionally multilayer skin systems, for culturing blood stem cells, for regenerating nerve tissues and for generating artificial organs.

45. (New) The use as claimed in claim 44, characterized in that the matrix is obtainable by:

- providing an aqueous solution of a chitosan and of an acid, in particular a hydroxy carboxylic acid, which is present in excess,
- freezing and drying the solution, in particular by sublimation under reduced pressure and
- removing excess acid before or/and after the freezing.

46. (New) The use as claimed in claim 44, characterized in that the matrix is sterilized.

47. (New) The use as claimed in claim 44, characterized in that cells are cultured in a density of 10^6 or more cells per cm^2 on or in the matrix.

48. (New) The use of a matrix system as claimed in claim 28 for the in vitro culturing of cells.

49. (New) The use of a matrix system as claimed in claim 28 as implant without previous cell colonization.

50. (New) The use of a matrix system as claimed in claim 41 for the in vitro culturing of cells or as implant without previous cell colonization.